1. **Rick Rush, SPA**
Q. Are we looking at UUV's being able to be launched from different platforms so that we don't always have to drive the ship in? Are we looking to make them helicopter compatible so that we can drop them from a helicopter?

CAPT Ims
A. I think for purposes for this specific Increment 2, what you see is what we're interested in. What we may or may not do in the future, we'll see where that goes. The focus today is 12 ¾ inch lightweight size UUV's on M-Class ships or other platforms of opportunity. Answering the other part of your question; are we looking for ways to get vehicles in other than ships? Absolutely.

2. **Dennis Haines, Nekton Research LLC**
Q. Earlier in the brief you talked about buying a vehicle of 7 ½ inches and yet the UUV Master Plan doesn't list sizes for the smallest vehicles. We've been working primarily on 3 1/8 size so that you can launch out of a 3 inch launcher. Is 7 ½ inches some de facto size?

CAPT Ims
A. When you get into 2 man portable sizes, that we call in the Master Plan, that can be anything smaller. We're not drawing a line. As far as today, for the RFP for November we're focusing on the kind of payloads we need, so it's probably going to have to be bigger than that (3 1/8 inch).
Q. No one has ever defined sizes….

CAPT Ims
A. The really small ones if you look at the Master Plan, I think we're kind of saying there is more flexibility because the integration is less complicated.

Rob Simmons (PMS-EOD)
A. And I can speak from an NSCT 1 EOD perspective, [for] man portable, smaller is better, as far as "platform independence" employment. The 12 ¾ inch can leverage the existing infrastructure of the lightweight torpedo. There's value added to the Navy from that standpoint…. There's not a similar analogy to the 7 ¾ inch.

CAPT Ims
A. I think the key element of that smaller class is that they be able to get in and out of a rubber boat.

3. **Rick Rush, SPA**
Q. Are you happy with the amount of Mine Warfare in the JCIDS process?

CAPT Ims
A. I think the process laid out here supports the JCIDS. We're talking about Increment 2 [and] the bottom line of it is that the requirements are sufficient. It's a UOES, limited number of systems to go get the capability in the fleet so we can learn lessons. Increment

3 will require better definition…. JCIDS support will be there. The program as it's laid out, fits with the JCIDS process.

4. **Scott Willcox, Bluefin**
Q. I think the output vehicle plan should be something that is two way and scalable. We're going be planning missions for lots of different types of vehicles. If you have one structure you're likely to have to pin that structure to … sortie planning…. You can provide different levels of plan to the vehicle specific modules… have a dialogue between UUV manufacturers and you guys… to define the 2 way mission plan.

CAPT Ims
A. That's the direction we want to go with. We want to make this message specification as generic and general as possible so that the whole idea is to make it generic enough so that it is a plug and play.

5. **Dave DeMartino, NSWC PC**
Q. Does that mean that MEDAL will interface to provide the tactical level planning with JUSC 2 etc?

Scott Marshall SAIC
A. MEDAL will pass the tactical plan, run UT plan model to get the waypoint for that path. The launch point, recovery point, etc. will be handled with that sortie planner.

Q. Then which message specification will be not only for the UUV's but also for the sortie planner?

A. It defines the …. The sortie planner… multiple vehicles operated at different times and the only part that's MEDAL would be the tactically correct locations…. after that, all of which is outside MEDAL.

A. A generic message planner will be used for sortie planning.

6. **Scott Willcox, Bluefin**
Q. I'm concerned about MEDAL parameters. Seventy five percent of the time it's not critical to have a defined value, however, there's going to be that other 25% of the time that you need to simply define a value… in MEDAL.

CAPT Ims
A. Where we're going in the big picture in this area, is working on the right interface with MEDAL. The Navy is going have a way ahead in ISR, ASW, many different areas. How exactly we're going architect that to make it work with all sorts of vehicles is a question that we haven't answered yet. Before we send out an RFP we'll get more clarity on that. As of today, the graphic you saw is the best we have.

7. **Larry Raithel, Qinetiq**
Q. My question is on tech insertion and the time line, ongoing tech experimentation, contract to Hydroid Inc. and Bluefin Robotics Inc., now going to UOES. In a few months there will be an RFP. How do you see that fitting with upgraded capabilities or tech insertion into that program? How does spiral 2 RFP fit w/ technology insertion since UOES data will not be available?

Charles Barns (PMS 403)
A. We've learned generic UUV lessons from experimentation, UOES is gaining experience and the intent is to get more "in water" experience before RFP. Wider swaths, better ID capability, and, to some degree, a bottom mine sensing technology may emerge from this "in water" experience. If we do learn things from the small vehicles we can adjust the tasking to the engineering services if we need to.

Rob Simmons (PMS-EOD)
A. Even with UOES vehicles arriving in September, they're going to the fleet that will be employing the vehicles 2-3 times a week. They are refining the CONOPS and the TT&P, which will translate directly to increment 2 vehicles. ONR technology transition gives us a perfect case in point… Prior to KB07 there will be incremental tech demos that will occur, that's why this Performance Parameter listing is critical including the definitions, not just the quantitative values, but the definitions as well. And that's what the system will be tested to by COMOPTEVFOR in Increment 3, that's why we're looking for your input. The contract will be awarded in Apr. 06, 18 months from then, we're asking you to deliver a vehicle based UUV system… if you see any issues that would drive risk, cost or schedule… that's what we're after.

CAPT Ims
A. I think another point is tightly coupled with the ONR experimentation, demonstration with technology program. The Navy thinks that if we move ahead with Increment 2 capability, by the time it's delivered to the fleet, that it's the right timing. Aggressive, but it makes sense with the timing of the technology. These include:

- Better I.D. bottom mines.
- Capabilities been driven by sponsor.

Rob Simmons (PMS-EOD)
A. Refinement of he CONOP and TT&P will drive Increment 2. Prior to KB07 will be more demos/tests supporting the definition of Increment 3.

CAPT Ims
A. Timeline is coupled w/ ONR experimentation and technology development.

8. **Eric Holmes, Lockheed Martin**:
Q. The M-class ships have other systems… like the 32, or 48. Are you coordinating w/ EMNS changes to MCM-1 class for ship integration issues?

Charles Barns (PMS 403)
A. We're working through those details with the resource sponsors, as to what systems to do in what years. LCS will be the integration plan of record for Increment 3. Increment 2 may be loosely integrated because of FY08-10 timeframe for EMNS change. We plan to continue things from previous demonstrations.

CAPT Ims
A. Increment 2 is what we're talking about loosely integrated, looking at getting capability out there through lessons learned. The follow on program (Inc 3) will be fully integrated. Bottom line, we're going to get the capability out there as quickly and efficiently as we can. Increment 3 will be a normal Acquisition approach.

Rob Simmons (PMS-EOD)
A. As far as discrete experimentation, in experiment #1, an ONR event in June 03, significant lessons were learned from UUVs launched from M-class ships. This has been an ongoing discussion with M-class ISEA, specifically related to launch and recovery from ships. We are trying to frame that a little better. For instance, keeping- a small boat out of the water when launching and recovering is not desired because that was a hardship and a danger to the UUV launch and recovery team and especially when the sea states are high. There were a lot of shipboard compatibility lessons learned in all of the experimentation events.

9. **Chris von Alt, Hydroid**
Q. Buried Mine detection? How do we get one?

Rob Simmons (PMS-EOD)
A. This is going to be a Performance Specification driven metric, and I'm hoping that the resource sponsor and requirements office affords them the same flexibility that we had when we supported the VSW MCM Detachment. That is to realize that there is going to be operational value added. We even went in with the 1st generation VSW MCM UUV requirements document with some TBD's in defined performance parameters. You know it's important, but it's such an emerging technology that you can't assign a quantitative value with confidence. I'm really putting it in the context of Increment 2 rather than 3. Information will be put out prior to Increment 3.

J**ohn Lathrop (NSWC-PC)**
A. I should say that in 1991 the Navy had a buried mine hunter, so you don't necessarily need to use the emerging technology.

CAPT Ims
A. It's buried mine detection, what the requirements are going to be will be one of the questions we answer going forward. I think as we work through this we'll better understand the technology. We'll go after buried mine detection for phase 3. The technology that answers that requirement is not crystal clear right now. Does that mean we go after SAS technology with a technical cut in for Low Frequency Broad Band?

There are many different ways to do it. It is not clear how fast technology will come along.

10. **Scott Willcox, Bluefin**:
Q. I was surprised that there wasn't any onboard CAD/CAC?

Rob Simmons (PMS-EOD)
A. I think it's ok not to drive any specific technical solution. I think if you look at the PMA, the time objective is going to drive you to something, especially if you are talking about amount of data, the swath width, the search rate etc.

11. **Rick Rush, SPA**
Isn't the 4:1 PMA rate is too slow?

Charles Barns (PMS 403)
A. That is understood but we don't want to levy a requirement on ourselves that we can't make. Once we get some real experience with it and see how long it really takes, we may adjust the threshold and objective, but we didn't want to be in the position where we have a requirement we can't meet.

12. **Chris von Alt, Hydroid**
Q. Why isn't there a distance listed?

Charles Barns (PMS 403)
A. The objective and threshold for the communications range is over the horizon.

13. **Eric Holmes, Lockheed Martin**:
Q. From what I've heard, I believe that the vehicle for Increment 3 is not just a modification of the vehicle from Increment 2?

Charles Barns (PMS 403)
A. Probably not.

14. **Morris Ransone (International Industries Inc.)**
Q. When will we see performance parameters for Spiral 2?

Charles Barns (PMS 403)
A. Spiral 2 is near term, but I'd ask if you have concerns in Spiral 3, let us know. The first priority is Spiral 2.

15. **Morris Ransone, International Industries Inc. :**
Q. Image analysis is not learned quickly. What do we assume are the capabilities of the personnel doing the missions?

CAPT Ims

A. Technical Evaluation and Fleet Evaluation have certification programs where the UUV Officer In Charge (OIC) certifies operators as competent to a certain specific level to operate the UUV and PMA. This is done in Power Point from CBT class. It's up to NSCT 1 UUV Platoon OIC to certify the operators. You can believe that new systems will not use new sailors to analyze side scan sonar, but sailors with experience.

Rob Simmons (PMS-EOD)
A. Notionally, sailors could be employing a simulator so that they can hopefully maintain or improve their proficiency in doing PMA since sonar analysis has proven to be perishable skill.

16. **Rick Rush, SPA**
Q. Past Spiral 3, what kind of quantities are we talking about (how many units will be built)?

CAPT Ims
A. There is no short answer to that question. However, I will say more than quite a few.

Charles Barns (PMS 403)
A. The estimated inventory objective for LCS is 56 ships 14 MCM and they are looking to buy 40 Mine Warfare packages. That is the latest number but it changes.

17. **Rick Rush, SPA**
Q. Will the Platoon's personnel stay in place through Increments 2 and 3?

LTJG Flores (COMINEWARCOM)
A. We have new personnel coming in and currently, until FY 11, we have 10 enlisted personnel planned for the platoon and 2 of them are new. As personnel rotate new positions will be filled through Increment 2 at least.

18. **Rob Simmons (PMS-EOD)**
Q. Are there any other types of info for you?

- Classifications and restrictions on distribution
- Get briefs/presentations up on the website in a couple days.
- Make a bibliography of top 10 open references

Charles Barns (PMS 403)
A. We will provide a draft security guide with the RFP.

17. **Chris von Alt, Hydroid:** One question would be about the fairly high charge rate. If you're really talking about getting back to work quickly there is an inherent safety issue that needs to be addressed, namely:

- Quick turnaround time (TAT) on batteries poses risk to safety since there is a great deal of energy transfer is a short amount of time for a battery

A. Since there appears to be a fairly high charge time, the swap out would probably be a good idea.

18. **Dave DeMartino, NSWC PC**:
Q. Is there somewhere to go to get ONR's Buried Mine Hunting data?

Rob Simmons (PMS-EOD)
A. Contact Dr. Lathrop, or Dr. Kerry Commander, Panama City.

19. **Dee Lambertus, Atlas Electronik**
Q. Within size classes of spiral 2, is torpedo shape mandatory?

CAPT Ims
A. Yes.

Q. What is the rationale behind that requirement?

- There is the wish to standardize UUV's. Unless the design is revolutionary and you can prove it, standardized is what we want
- We have ship dollars and other infrastructure that fits that size vehicle.

Q. If there is a 12 ¾ requirement on the vehicle are there are no restrictions on appendages?

- Not at this time.

Q. Does it have to fit in Lightweight torpedo tube?

- No. We are interested in the 12 ¾ in Increment 2. We are not saying it has to go into a lightweight tube. In the future we may make that something we want. The Performance Specification doesn't say it needs to be launched from a tube. Q. Perhaps we should research appendages? The UUV's are hard to handle with appendages sticking out.
- The drawback to retractable antennas is reliability and cost.

20. **Bob Tims, EMS Development:**
Q. What about confirmation UUV's? Since they could detect buried mines, could they be used to read the signature of ships or as a means of determining danger to the ships? Could magnetic sensors be used on ships and UUV's for self protection?

Dr. John Lathrop (NSWC-PC)
A. Yes, the magnetic sensors have plenty of capability to sense ships and landing craft. The controller and power supplies on ships give them a large magnetic signature.

Q. Will MEDAL be used/integrated to determine range/bearing for threat?

Charles Barns (PMS 403)
A. Yes, the degree is yet to be determined.

21. **George Pollitt, JHU**:
Suggestion: Mine ID threshold was too lax. PdPC was too high (75%)